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(ACCOMPANIED BY A PROVISIONAL SPECIFICATION)

Complete Specification
entitled (54) BUILDING AND METHOD OF ERECTIONLodged (23) 3rd November, 1971
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19349/29 81.2; 81.3
132694 (25614/45) 81.3; 81.2; 81.4

The following statement is a full description of this invention, including the best method of performing it known to us :

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This invention relates to a building and to the method of erection of such a building.

According to conventional practice, buildings are erected on site, and although it is possible to achieve relative high efficiencies and utilise relatively inexpensive materials, this is very seldom achieved due to the fact that different tradesmen are required at different times and it is not practical in most instances to ensure full utilisation of the available labour.

This difficulty, however, is obviated if a building is constructed within a factory, and for this reason many attempts have been made to produce prefabricated buildings which compete with buildings erected on site. While prefabricated buildings have been successful, they have been limited primarily to buildings employing sheets of facing material, for example, asbestos cement, since transporting costs are excessive when a relatively large building is constructed as a prefabricated building but utilises heavy masonry walls.

The main object of this invention is to provide a building, and the method of erection of such a building, wherein masonry walls may be utilised, and yet wherein a building may be constructed by the prefabrication techniques.

The invention in one of its forms consists of a building having a monolithic peripheral foundation, a steel chassis supported by the foundations, ^{pre-fabricated} a building

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structure secured to and supported by the steel chassis, said building structure comprising a frame, inner walls comprising linings attached to said frame, a floor, a ceiling and a roof, a free standing masonry wall supported by the footings and surrounding said wall linings, of the building structure, and means tying the masonry wall to the frame. By this means then, it becomes possible to prefabricate the main part of the structure, transport the main part of the structure to the site in one or a plurality of portions, secure the structure to the support and subsequently erect the substantially free standing walls around the outside. Thus, all the advantages of the prefabricating techniques are available except for the outer walls, and the advantages of the on site techniques are available as far as erection of the outer walls is concerned.

An embodiment of the invention is described hereunder in some detail with reference to and is illustrated in the accompanying drawings, in which:-

Fig. 1 is a perspective view of the peripheral foundation with a series of spaced parallel supports,

Fig. 2 is a somewhat diagrammatic section through a building showing two portions being drawn together, and

Fig. 3 is a section through a building when fully assembled.

In this embodiment a building 10 is formed from two prefabricated portions 11, each prefabricated

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portion including a series of spaced parallel floor joists 12 having upstanding studs 13 at their ends, the floor joists 12 supporting a floor 14 and the upstanding studs supporting the inner lining 15 of the building 10. The upstanding studs 13 are interconnected by means of ceiling joists²² ~~(also designated 12)~~ and these in turn support a ceiling 16 in the usual way, and a pitched roof 17 is also carried by the studs.

The building is formed with each portion including one half of the pitched roof so that when the two portions are drawn together, the apex exists along their join line.

The structural members are steel, thereby providing a high degree of accuracy so that the portions can be drawn together with a reasonable degree of assurance that alignment will be achieved. The other materials used in the portions can be selected according to requirements, and their selection forms no part of this invention.

The monolithic foundations 21 are in the form of a rectangular peripheral frame of concrete which lies on the ground, but the foundations need be only relatively light in structure, the roof wind load and the interior structure dead load being transmitted to them through a series of spaced parallel RSJ supports²³ ~~21~~. These supports are secured at their ends to the foundations but do not pass over the foundations, leaving sufficient room for outer brick walls to be

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supported by the foundations.

The method of erection is to firstly lay the foundations and secure the RSJ supports (Fig. 1), to then place the two portions of the building on the RSJ supports (Fig. 2), draw the portions together, and weld the portions to the RSJ supports so that the supports become a monolithic chassis supporting the entire building, whereby the loading of the building is transmitted over a relatively large portion of the foundations, and subsequently to erect a brick wall 23 surrounding the building on the foundations. The wall ~~23~~²³ is tied to the frame which comprises the studs 13 and the joists 12.

A brief consideration of the above embodiment will indicate that it is very simple, but nevertheless results in a building which incorporates the advantages of prefabrication together with the advantages of masonry outer walls. It will furthermore be seen that the prefabrication, in utilising dimensionally stable steel, ensures accurate relationships between the foundations and the structures so that the erection of the walls is simplified. For example, the vertical portions of the building portions are truly vertical and, therefore, provide alignment means which simplifies the laying of bricks.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A building having a monolithic peripheral foundation of concrete,

a steel chassis supported by the foundations, a pre-fabricated building structure secured to and supported by the steel chassis, said building structure comprising a frame, inner walls comprising linings attached to said frame, a floor, a ceiling and a roof,

a free standing masonry wall supported by the footings and surrounding the inner wall linings of the building structure, and means tying the masonry wall to the frame.

2. A building according to claim 1 wherein the chassis comprises supports carried at least on their ends by the foundation, and floor joists extending across the supports and secured thereto.

3. A building according to claim 2 wherein said supports are rolled section steel members and their ends terminate on the monolithic peripheral foundation inwardly of the masonry wall and are not embedded within the masonry wall.

4. A building according to claim 2 or claim 3 wherein said frame comprises said supports and floor

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joists, and further comprises studs and ceiling joists, the studs joining the floor and ceiling joists.

5. A building according to any preceding claim wherein said masonry wall is a brick wall.

6. The method of constructing a building comprising the steps of laying a monolithic peripheral foundation of concrete, positioning a series of spaced parallel steel supports on the foundation, to form a chassis, with the ends of the supports supported by the foundation but extending part-way only across the foundation, positioning a pair of pre-fabricated building frame sections on the supports, each building frame having wall linings attached to the inner faces of said frame, a floor, a ceiling and a roof, moving the building frame sections towards one another and securing them to one another and also to the chassis, and erecting a brick wall on the peripheral foundation to surround but not embed the frame.

7. A building substantially according to the embodiment described in the specification with reference to and as illustrated in the accompanying drawings.

8. A method of constructing a building substantially according to the embodiment described in the specification with reference to and as illustrated in the accompanying drawings.

Dated this 2nd day of November, 1971.

SIGAL INDUSTRIES PROPRIETARY LIMITED.

By its Patent Attorneys,
R.K. MADDERN & ASSOCIATES.

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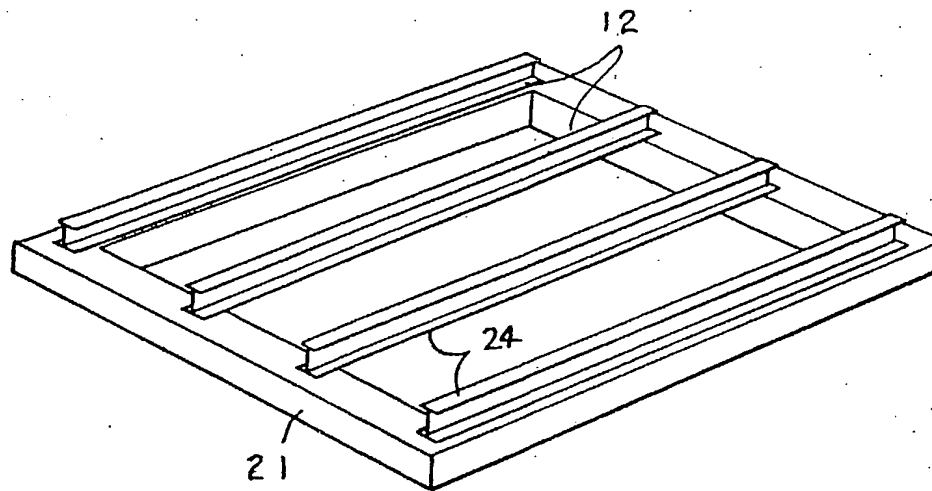


FIG 1

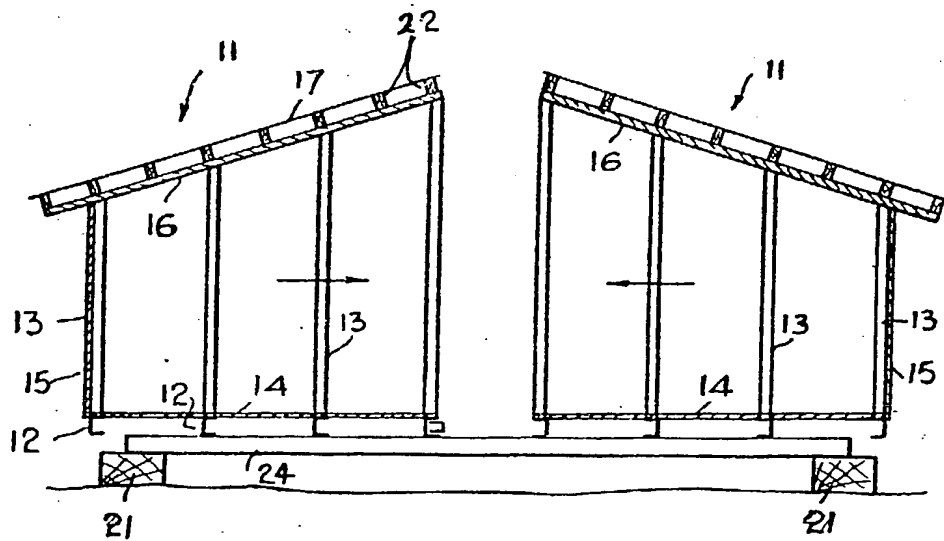


FIG 2

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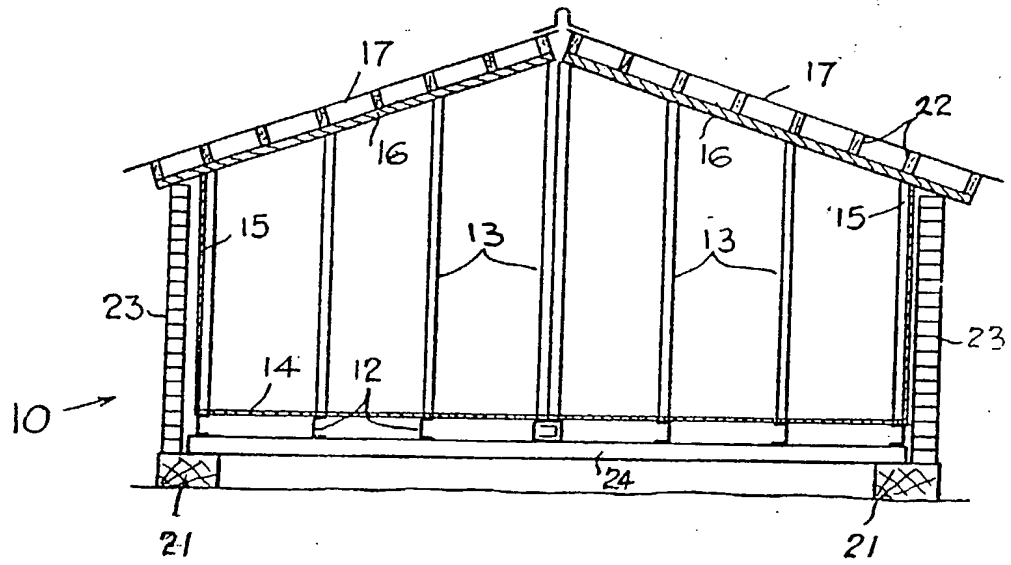


FIG 3

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